

# AMERICAN RAILROAD JOURNAL.

AND

## IRON MANUFACTURER'S AND MINING GAZETTE.

ESTABLISHED 1831.

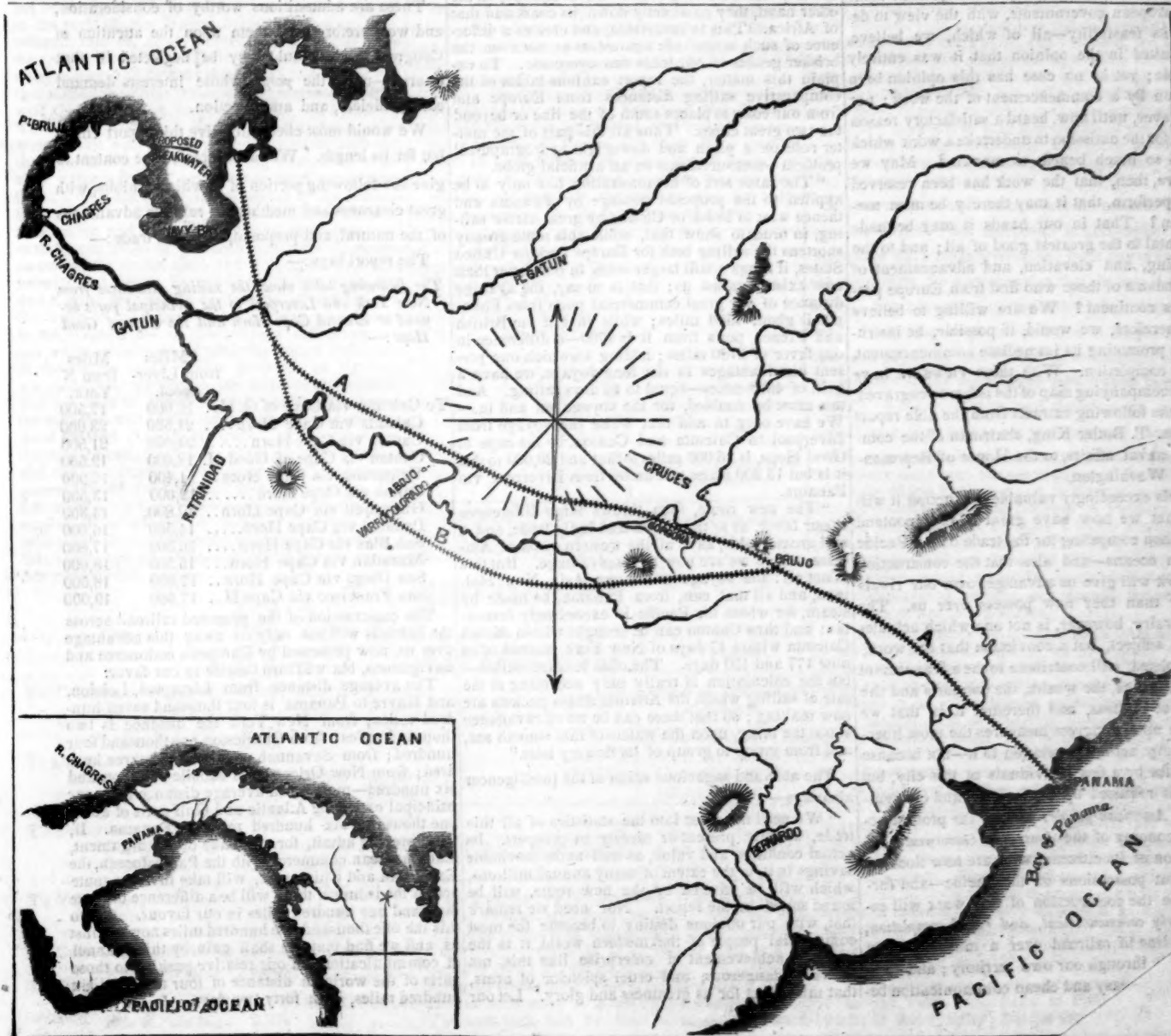
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SATURDAY, JANUARY 27, 1849

[WHOLE No. 667, VOL. XXII.]

PANAMA RAILROAD.—A A showing the probable, and B the possible route of the line. To those not familiar with the bearing of the coast of the Isthmus, the position of Chagres and Panama, will appear to be reversed, but by reference to the small sketch, in the lower left hand corner, it will appear correct. The distance by the proposed road is 51 miles, and the elevation to be overcome 337 feet.



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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 98 NASSAU STREET, NEW YORK.

Saturday, January 27, 1849.

## Index for 1848.

We sent with the last number, the **TITLEPAGE AND INDEX** for Vol. 21—or 1848.

## Panama Railroad,

Or the Proposed Connection Between the Atlantic and Pacific Oceans.

We alluded, in our last, to this important work, and promised to give in this number, a sketch of the proposed line, with further remarks in relation to it, which promise we now propose to redeem.

The question of a passage across the isthmus, from the Atlantic to the Pacific, at one point or another, has occupied the attention of able and sagacious men for a very long period; and several examinations have been made by the subjects of some of the European governments, with the view to determine its feasibility—all of which, we believe, have resulted in the opinion that it was entirely practicable; yet in no case has this opinion been acted upon by a commencement of the work; nor have we ever, until now, heard a satisfactory reason assigned for the omission to undertake a work which promised so much benefit to mankind. May we not believe, then, that the work has been reserved for us to perform, that it may thereby be most useful to man? That in our hands it may be made instrumental to the greatest good of all; and to the enlightening, and elevation, and advancement of the descendants of those who first from Europe possessed this continent? We are willing to believe so, and therefore, we would, if possible, be instrumental in promoting its immediate commencement, and early completion. With these views we have had the accompanying map of the isthmus engraved, and give the following extracts from the able report of the Hon. T. Butler King, chairman of the committee on naval affairs, to the House of Representatives at Washington.

From this exceedingly valuable production it will be seen that we now have great odds to contend against, when competing for the trade of the Pacific and Indian oceans—and also that the construction of this work will give us advantages over our rivals far greater than they now possess over us. The spirit of rivalry, however, is not one which actuates us on this subject, but a conviction that the work, when completed, will contribute to the advancement of the intelligence, the wealth, the comforts and the happiness of millions, and therefore it is that we would urge upon congress measures the most liberal, and prompt action in relation to it—not because it is asked for by a few individuals of this city, but because it is required by the interest, and convenience of the American people; and for the prompt action and economy of the American Government, in the protection of its citizens, who are now flocking to our distant possessions on the Pacific—and further because the construction of this work will ensure the early commencement, and rapid completion, of another line of railroad over a more northerly route, entirely through our own territory; and thus open a still more easy and cheap communication be-

tween the Atlantic and Pacific states, and secure the perpetuity of the Union.

By a careful perusal of the following extracts from the report above referred to, the importance of the Panama railroad will be seen, and appreciated, by every intelligent mind; and we trust that congress will grant such aid as will ensure immediate, energetic, and unfaltering action, until the rapid car shall supersede the "Indian canoe," and the Spanish "pack mule," between the two oceans. This should be done without delay—of course under proper restrictions, and securing to the government and the people all proper protection in its use.

In referring to the relative advantages of European and American commerce, under the present and proposed circumstances, the National Intelligencer holds the following language, viz:

"For, except within the Atlantic, from positive physical causes, (heretofore scarcely remarked, unless by the private experience of our merchants and navigators) they who inhabit the European shores have a large maritime advantage over us; they lie, nautically, fifteen hundred miles nearer, in both time and sailing distance, to the passage around the two great capes of the world (Good Hope and Horn) than we do. From our coast, to avoid certain regular winds and meet certain others, it is necessary, on either great voyage, to run quite down to the Azores, before steering south. From Europe, on the other hand, they go directly down its coast and that of Africa. This is invariable, and creates a difference of such magnitude against us as not even the brisker genius of our trade can overcome. To explain this matter, the report exhibits tables of the comparative sailing distances from Europe and from our coast to places south of the line or beyond the two great capes. Thus all this part of the matter rests on a plain and downright hydrographical problem—measurements on an artificial globe.

"The same sort of demonstration has only to be applied to the proposed passage by Panama and thence west to India or China, by great circle sailing, in order to show that, while this route greatly shortens the sailing both for Europe and the United States, it flings a still larger odds in our favor than now exists against us; that is to say, the average distance of our great commercial ports from Panama is about 1600 miles; while that of the British and French ports from it is 4700—a difference in our favor of 3100 miles; adding to which our present disadvantages in the long voyage, we have a gain of 4600 miles—equal to 42 days sailing. And this must be doubled, for the voyage out and in.—We have only to add that while the voyage from Liverpool to Calcutta and Canton, by the cape of Good Hope, is 16,000 miles to that and 20,000 to this it is but 13,300 miles to Canton from Liverpool via Panama.

"The new route, then, throws large differences in our favor, as to the China and India trade, and a still greater odds, as to all the western coast of America, where we are now at disadvantage. But this is not all: the voyage to Eastern Asia, New Holland, and all that, can, from Panama, be made by steam, for which the Pacific is exceedingly favorable; and thus Canton can be brought within 36, and Calcutta within 47 days of New York, instead of as now 177 and 159 days. The odds look incredible—but the calculation is really only according to the rate of sailing which the Atlantic steam packets are now making; so that there can be no extravagance about the thing, upon the waters of that smooth sea, and from group to group of its flowery isles."

The able and sagacious editor of the Intelligencer also says—

"We need not enter into the statistics of all this trade, whether present or merely in prospect. Its actual condition and value, as well as the inevitable savings in it, to the extent of many annual millions, which will be effected by the new route, will be found stated in the report. Nor need we remark that, with our obvious destiny to become the most commercial people of the modern world, it is the peaceful achievement of enterprise like this, not the vain, dangerous, and cruel splendor of arms, that must erect for us greatness and glory." Let our

greatness and glory be humane, benificent; or not be at all.

In addition, however, to this policy—we might better say this necessity—of trade, prescribed to us by the maritime causes which we have explained, and rendering it inevitable that we should counter-vail by an artificial access the natural advantage of our present rivals, we have of late, by reducing Oregon to possession and the acquisition of California, imposed on ourselves necessities of dominion. As only a most accelerated communication with our new and wide regions of the Pacific—that second and separate empire as great as our present one—can enable us to interchange with the population about to throw itself thither the relations and functions of a common government; so nothing but the speedy execution of some plan like this can render our acquisitions there anything but fatal preparations for the early severance of the very possessions which we shall have formed at such cost of treasure, of labor, of the transfer of our resources and population. It is now clear that the country in question is to spring up into rapid prosperity and strength, and therefore with little peopling of the huge wastes that intervene between them and our present utmost settlements of the basin of the Mississippi and Missouri; so that their very celerity of growth must, if unremedied by a readier intercourse in another direction, precipitate that separation from us which some of our able politicians have already foretold as sure to ensue from the natural causes that we have briefly touched upon."

These are admonitions worthy of consideration, and we therefore urge them upon the attention of Congress, and—should they be neglected in that quarter—upon the people whose interests demand early, efficient, and ample action.

We would most cheerfully give this report entire but for its length. We must therefore be content to give the following portion of it, which exhibits, with great clearness and method, the relative advantages of the natural, and proposed, course of trade:—

The report says:—

The following table shows the sailing distances from New York and Liverpool to the principal ports beyond or around Cape Horn and the Cape of Good Hope:—

	Miles from Liver- pool.	Miles from N York.
To Calcutta via Cape of G. H. . . . .	16,000	17,500
Calcutta via Cape Horn . . . . .	21,500	23,000
Canton via Cape Horn . . . . .	20,000	21,500
Canton via Cape of Good H. . . . .	18,000	19,500
Valparaiso via Cape Horn . . . . .	11,400	12,900
Callao via Cape Horn . . . . .	12,000	13,500
Guayaquil via Cape Horn . . . . .	12,800	14,300
Panama via Cape Horn . . . . .	14,500	16,000
San Blas via Cape Horn . . . . .	16,300	17,800
Mazatlan via Cape Horn . . . . .	16,500	18,000
San Diego via Cape Horn . . . . .	17,000	18,500
San Francisco via Cape H. . . . .	17,500	19,000

The construction of the proposed railroad across the Isthmus will not only do away this advantage over us, now possessed by European commerce and navigations, but will turn the tide in our favor.

The average distance from Liverpool, London, and Havre to Panama is four thousand seven hundred miles; from New York the distance is two thousand miles; from Charleston one thousand four hundred; from Savannah one thousand three hundred; from New Orleans and Mobile one thousand six hundred—making an average distance from our principal exporting Atlantic and Gulf ports of about one thousand six hundred miles to Panama. If, therefore, we admit, for the sake of the argument, that European commerce with the Pacific Ocean, the East India and China seas, will take the new route across the isthmus, there will be a difference of three thousand one hundred miles in our favour. Add to this the one thousand five hundred miles now against us, and we find that we shall gain by this channel of communication, in our relative position to those parts of the world, a distance of four thousand six hundred miles, or of forty two days. In the voyage



out and home we shall have the advantage of our European competitors of nine thousand two hundred miles, and eighty-four days, as compared with the present route.

Table showing the average distances over the new route from Liverpool, London, and Havre, and from New York, Charleston, Savannah, Mobile and New Orleans, to the places named:—

Places.	Average distance from N. York and the other ports above named, via the Isthmus of Panama.	Average distance from Liverpool, London, & Havre, via the Isthmus of Panama.
	Miles.	Miles.
To Panama.....	1,600	4,700
Guayaquil.....	2,400	5,500
Calao.....	3,100	6,200
Valparaiso.....	4,400	7,500
San Blas.....	3,400	6,500
Mazatlan.....	3,600	6,700
San Diego.....	4,100	7,200
San Francisco.....	4,600	7,700
Shanghai.....	10,000	13,100
Canton.....	10,200	13,300

This is admitting that European ships will come freighted to the terminus of the railroad on this side of the isthmus, with cargoes intended for the markets of the Pacific and China. That, however, will not be the case. The large number of vessels bound to the ports of the United States for cotton, rice, tobacco, lumber, flour, provisions, &c., will bring the freight for those markets as ballast or cargoes, whence they will be conveyed to the railroad in our fast sailing coasting vessels and steamers, which will also bring to us the commerce of the Pacific.—This is very obvious, because, if European ships were to sail with full cargoes direct to the railroad, they would run the risk of being compelled to return without freight, or come to the United States for it. We are not so much nearer to the isthmus than the ports of Europe, and our means of communication and information will be so frequent and certain, our lines of steamers and coasting vessels so constantly on the alert, and will move with such celerity that heavy European freight ships will find it quite impossible to compete with them. If this view of the subject be correct, and we believe it is, the construction of this railroad will throw into our warehouses and shipping the entire commerce of the Pacific ocean. Our ports are on the very wayside from Europe to the Isthmus of Panama, and our lines of steamers and packet-ships across the Atlantic will come laden with the freights destined for that channel of trade. The commerce, therefore, from Europe to the East Indies, China, and the west coast of the continent, will be forced to pursue the old route or fall into our hands. The following table shows stronger than language could express it the saving in distance and time which will result to our commerce from the completion of this work, and the advantage it will give to us over our commercial rivals:—

Places.	New route from New York.	Old route from New York.	From Liverpool.
	Miles.	Miles.	Miles.
To Calcutta, via Cape of Good Hope.....	17,500	16,000	
" Cape Horn.....	23,000	21,500	
" Isth. of Panama.....	13,400		
To Canton, via Cape of Good Hope.....	19,500	18,000	
" Cape Horn.....	21,500	20,000	
" Isth. of Panama.....	10,600		
To Shanghai, via Cape of Good Hope.....	20,000	18,500	
" Cape Horn.....	22,000	20,500	
" Isth. of Panama.....	10,400		
To Valparaiso, via Cape Horn.....	12,900	11,400	
" Isth. of Panama.....	4,800		
To Callao, via Cape Horn.....	13,500	12,000	
" Isth. of Panama.....	3,500		
To Guayaquil, via Cape Horn.....	14,800	12,000	
" Isth. of Panama.....	2,800		

To Panama, via Cape H.....	16,000	14,000
" Isth. of Panama.....	2,000	
To San Blas, via Cape Horn.....	17,500	16,300
" Isth. of Panama.....	3,800	
To Mazatlan, via Cape Horn.....	18,000	16,500
" Isth. of Panama.....	4,000	
To San Diego, via Cape Horn.....	18,500	17,000
" Isth. of Panama.....	4,500	
To San Francisco, via C. Horn.....	19,000	17,500
" Isth. of Panama.....	5,000	

These figures show that the new route across the isthmus will bring us more than an average of ten thousand miles nearer to the East Indies, China, and the ports of South America on the Pacific, and will actually, for all the purposes of navigation and commercial intercourse, bring the ports of the west coast of Mexico, California, and Oregon, fourteen thousand miles nearer to us than they now are!—With steamers on each side of the isthmus that will go fifteen miles an hour—a speed ascertained to be quite practicable—passengers, the mails, and small packages of light and valuable goods may be conveyed from New York to San Francisco in fourteen days, and from our southern ports in less time.—Thus bringing these remote points, for all practical purposes, nearer than New York and New Orleans were twenty years ago.

The average saving of time in our commercial intercourse with the west coast of America, China, and the East Indies, which will be effected by the construction of the proposed railroad, is exhibited in the following table:—

Table showing the saving of time from New York, by the new route, via the Isthmus of Panama, as compared with the old routes, via Cape Horn and the Cape of Good Hope, to the places therein named, estimating the distance which a common trading vessel will sail per day to be one hundred and ten miles, and calculating for the voyage out and home.

To	Miles.	Days.	To	Miles.	Days.
To Calcutta.....	17,500	318	To Canton.....	19,500	362
To Canton.....	19,500	362	To Shanghai.....	20,000	362
To Shanghai.....	20,000	362	To Valparaiso.....	22,000	400
To Valparaiso.....	22,000	400	To Callao.....	13,500	250
To Callao.....	13,500	250	To Guayaquil.....	14,800	280
To Guayaquil.....	14,800	280	To Panama.....	1,600	30
To Panama.....	1,600	30	To San Blas.....	3,400	62
To San Blas.....	3,400	62	To Mazatlan.....	3,600	64
To Mazatlan.....	3,600	64	To San Diego.....	4,100	72
To San Diego.....	4,100	72	To San Francisco.....	4,600	84
To San Francisco.....	4,600	84			

The employment of the steam vessels would render the contrast still more striking. But the difficulty and expense of transporting heavy merchandise across the isthmus in its present state, and the distance round the capes, render the employment of steam in the carrying trade to the East Indies, China, and the west coast of America quite impracticable. The most that can be done is to employ steam-

packets in the conveyance of the mails and passengers. Let this railroad be completed, however, and no part of the world will present as great advantages for the successful use of steam in ocean navigation as the Pacific. Coal is found on all its borders, both America and Asiatic, in the greatest quantity and perfection. Its quiet waters seem to indicate steam as the proper agent to be employed in their navigation. The spirit and genius of the American people, and the extent of our territory on the west side of the continent, proclaim clearly enough that we are to become the legitimate heirs of a vast commerce that shall spread fleets of steam-ships over the bosom of this peaceful ocean.

Steamers, with a speed of twelve miles an hour, would go from New York via the isthmus, (throwing out the fractions)—

To Calcutta in.....	47 days
To Canton in.....	36 "
To Shanghai in.....	35 "
To Valparaiso in.....	17 "
To Callao in.....	19 "
To Guayaquil in.....	21 "
To Panama in.....	7 "
To San Blas in.....	13 "
To Mazatlan in.....	14 "
To San Diego in.....	16 "
To San Francisco in.....	18 "

When we consider the remarkable results presented in the foregoing tables, and compare our present condition with what it will be when the proposed railroad shall be completed, and the advantages we shall then possess over all competitors for the commerce of the Pacific and the East, we need not be surprised that European capitalists have refused to lend their aid to the accomplishment of an undertaking which will not only deprive them of the decided superiority which they now possess over us in their intercourse with nine-tenths of the world—exclusive of ourselves—but will place us so far ahead in the race for commercial supremacy that they can never overtake us.

May we not safely assume that the position here advanced, viz:—That European governments and capitalists have mainly refrained from engaging in the work from the apprehension that it would tend more to the advantage of their rival than themselves? If so, then ought we to allow it longer to be delayed? ought we not rather to commence it at once—and to relax not a nerve until it shall be completed? It seems so to us, and therefore we again urge it upon Congress to act promptly, and liberally.

The report adds, "whether any considerations of this nature have been the secret cause of the failure of all the efforts hitherto made in Europe to open a communication across the Isthmus of Panama, we pretend not to say, but we think it by no means improbable that men who now hold in their hands the pursestrings of the world would decline taking any steps which would so evidently deprive them of their commanding position, and transfer the seat of the money power to our shores.

"If a wise sagacity has deterred them from aiding to advance us at their expense, we may justly be regarded as blind to our true interest if we hesitate to adopt such measures as will secure the prize which is offered to us. In all great public movements it is as natural, as it is evidently proper, that every nation should consider well what course of policy will be best. With regard, therefore, to a channel of communication across the Isthmus of Panama, it was to be expected that, while European governments and capitalists would acknowledge its vast importance to the commerce of the world, they would not fail to perceive that its completion would transfer the seat of the commercial empire to the western hemisphere. Hence the scheme of a ship canal has found no favor with them except in empty words whilst a railroad is openly objected to as worse for them than no communication at all. Mr. Alexander Forbes, in his work on California, published in London, in 1839, page 319, says:—

"It has lately been much recommended to make a railroad from Porto Bello to Panama, or somewhere in that vicinity; but the foregoing objections



exist to this in all their force as to a canal for boats, and I should consider such an undertaking as utterly useless, in a commercial point of view. If, on the contrary, the canal was made capable of admitting vessels to pass through with their cargoes, the delay would be very small, and the expense trifling. Asia would be thereby brought by one half nearer to Europe, and the passage to all the west coast of America and the Pacific islands shortened in a still greater degree. This revolution in the commerce with Asia and the Pacific ocean, if it were to happen, would aggrandize the country of which we have been treating—California—in an extraordinary manner."

"Hence is the argument in favor of European commerce. The reader would not be led to suppose there was such a place on the face of the earth as the United States, yet it is precisely because there is such a country that the writer objects, in his heart, to a railroad. If any change is to be given to the course of European commerce with the west coast of America and the East Indies, by a communication across the Isthmus of Panama, it is quite clear that a ship canal would be the only channel that could save it from falling rapidly into our hands, while it is equally certain that our interests point to a railroad, as best suited in all respects to our position and progress."

#### Cleveland and Columbus, Ohio, Railroad

This road is, we understand, progressing energetically. The grading, bridging and laying the superstructure of the entire road is, we understand, contracted to be done by a highly responsible and energetic company—at the head of which is Mr. Witt, well known for many years past as the manager of the affairs of the Western railroad at its Albany terminus—and is to be completed by the first day of November, 1850. The engines and cars are also contracted for. A large and reliable subscription to the stock of the company has been made by the citizens of Ohio. The cost will be very small, compared with any other road of equal length. It is to have the heavy H rail. Alfred Kelly, Esq., formerly Ohio canal commissioner, and superintendent of construction of the canal extending from Lake Erie to the Ohio river, which cost less for its length and capacity, than any other work in the country, is president of the company. The Cleveland and Columbus road will complete another railroad connection between the Ohio river and the lake.

The Northern N. Y. R. Co., have renewed the application which was pending during the last session of the legislature, to amend their charter, giving them the power to erect a bridge across lake Champlain, and we can hardly imagine that the application will be denied by an enlightened and liberal legislature.

#### Long Island Railroad.

We understand that the present policy of the management of this road is to secure to it the confidence, and business, of the people of the Island.—There has never been a doubt, in our mind, of the propriety of making the business of the Island the first consideration, and the Boston travel secondary, nor have we hesitated so to speak at all proper times. If properly fostered, and developed by judicious rates and facilities, it will eventually ensure ample business, and liberal returns upon the investment.

The annexed statement exhibits the gross income of this company in each of the past three years:

Long Island Railroad—Gross Receipts.			
	1846.	1847.	1848.
Local Fares.....	\$69,721	106,136	108,955
Local Freights.....	24,932	37,170	43,317
Mails and Express..	3,986	5,266	5,818
Total.....	\$118,639	148,593	158,099

This shows a small annual increase in the gross income; while the expenditures have been largely reduced. The reduction of the debt has reduced the payments of interest, and the economy exercised in

the transportation department has given the company a larger net income from the same revenue. The rent of the Brooklyn and Jamaica road has been reduced from \$33,300 to \$21,000 per annum, payable monthly, and one seventh of the receipts, over and above \$150,000 per annum, until the gross amount of rent shall reach the original amount—\$33,300—reserved in the lease.

A great extent of land through which the road runs in the middle sections of the Island, to wit, from Farmingdale, in Queens, to Riverhead, in Suffolk county, a distance of forty miles, and covering an area of more than 150,000 acres, is now, with but few exceptions, unoccupied and unimproved.—The greater portion of these lands possess all the requisites, under judicious management, aided by the great facilities now offered by the use of the road, for profitable cultivation; and extensive operations are in progress by enterprising individuals, for the immediate settlement of the same by an industrious and frugal class of emigrants, which, when effected, will give a business to the road which no competition can divert from it.

We are informed that there has been a large sale of these unimproved lands consummated within a few days past; that the purchasers are an able and enterprising body of citizens, and that their object is the immediate settlement upon them of German and other industrious emigrants, arrangements to which end are now in progress; it is expected that a large number of them will reach these lands during the present year.

The capital stock of the company outstanding is 43,270 shares, the par value of which is \$50, making an aggregate of \$2,163,400. This, with the debt of \$446,808 87, making the total amount of liabilities \$2,610,308 98—so represent which the company have 96 miles of road, depots, and running property sufficient for any increase of business.

Let the company adhere to their present policy, of attending to the business of the Island first, and then to the through trade—if other parties will take it at Greenport—and they will make their road both useful and profitable.

#### Syracuse and Utica Railroad Annual Report.

We have received the first annual report of this company, made in accordance with the general railroad law of New York—which requires much more detail than the previous law requiring annual reports from each company—and we therefore give it entire, except that portion which gives the numerous items of freight, and the tabular statement of receipts and expenditures from the opening of the road, July 3d, 1839, to January 1, 1849—for which, to January 1, 1848, we refer the reader to page 660, or October 14, 1848.

This road occupies a very favorable position, and will prove an exceedingly good investment.

The rates of fare have been materially reduced on this road, and on the entire line from the Hudson to the lake, from which we anticipate favorable results, and, ultimately, a still further reduction.

The increase of business on this road will now be much greater than formerly, as it is prepared for carrying freight, and also as the Oswego railroad will give it a large amount, especially during winter.

*Annual Report of the business of the Syracuse and Utica Railroad Company, for the year 1848.—Made in pursuance of a provision of its charter, and also of the Act, entitled "An Act to authorize the formation of Railroad corporations," Passed March 27, 1848.*

The Syracuse and Utica railroad forms a part of the central line of railway between the Hudson river and Buffalo. It is 53 miles long, and is now laid with a single track of iron rail of the general average weight of 61 pounds to the yard.

This new track was commenced in 1846, and about two miles of it was laid that year. The grading for such track had been commenced and executed to some extent in the year 1845.

When this new track was commenced, it was determined to prosecute the work in reference to an entire double track of iron, to be laid down as soon as the demands of business should require it.

In the laying of the first track, therefore, a considerable amount has been expended, in the substitution of masonry for wood in the abutments, and piers of bridges; in culverts, in covered drains, and in grading and opening drains on both sides of the road.

The new track is laid mostly upon a gravel bed, on cross ties, or sleepers, without any other wood in the structure.

Several bridges have been rebuilt, with a double track over them. The Erie canal is crossed twice with bridges, both of which are new, one having been built in 1847 and the other the last year. They are each covered, of approved kind, and well built.

The Mohawk river is also twice crossed with bridges, both of which have been rebuilt within the last two years.

Considerable sums of money have been expended in rebuilding water stations permanently, and in obtaining supplies of good soft water. Originally the importance of this was not understood.

There will be required a large additional expenditure in like rebuilding of other stations, and in obtaining further supplies of water.

At several of the stations new freight houses will be required the next year.

When the reconstruction of the road was entered upon, the great importance of improving the grades was apparent, and it was resolved to improve them wherever it could be done within the reasonable means possessed by the company.

As this road was originally located upon a low tract of land, in order to obtain the most level and direct line, a considerable part of which is swampy, it will require a large annual outlay in gravelling across these low lands, in order to make a firm road bed.

Our experience has shown that the nearer it is possible to come to the level, in the grade line of the road, in that proportion is the business upon it carried on with economy and certainty. A large amount of money has therefore been expended to reduce the grades wherever it was practicable to do so.

About twenty-two miles of new track was laid before the year 1848. During that year about thirty-one miles of single track has been relaid, besides a considerable extent of branches and the commencement of the double track in three places. In all about four miles of the second or double track has been laid during the past season, so that there has been equal to 35 miles of single track laid exclusive of branches and turnouts, during the year.

The relaying of the track at the same time that the regular passenger business of the line was kept up, and which required six trains



daily over the road, has required the steady employment of five engines, with working trains, in the grading and gravelling of the road and in the moving of materials.

The number of men employed daily upon this work during the season of laying the track, has generally not been less than 500, and a portion of the time much above that number.

The iron first laid upon this road was the flat bar of 2½ inches wide by ¾ of an inch thick. It has been used about nine years.—As fast as the new rail was brought into use, the flat bar was taken up and sold. It was found that the loss by wear upon this rail was about 300 tons out of 2000.

**Double Track.**—In order to carry out the intention of laying a double track, the directors resolved to increase the capital stock of the company by the addition of five hundred thousand dollars, thus making the capital two millions of dollars. The first call of 10 per cent. on this increase was payable on the first of December last. The opening of the railroad between Syracuse and Oswego it was supposed would afford a considerable additional business. Safety also demands a double track as soon as the business of any road will justify it. With a double track from Syracuse to the Hudson river, the trains may be divided, thereby lessening their great weight, and increasing the accommodation to the public.

It will require about 5000 tons of iron additional to lay this track. The iron is all contracted for in England, and over 1000 tons of it is delivered, free of all charge, is equal to about \$47 per ton. The weight of this bar is nearly 70 pounds to the yard.

The iron for the first track was all made in this country. The cost of 5000 tons contracted in England and now arriving, is more than \$100,000 less than that of the same quantity made in this country. The iron last purchased has been subjected to such tests as to give confidence to its quality.

It is intended to proceed in laying down this track as soon as the weather will permit, in the ensuing spring, and it is to be hoped that the whole may be laid during the year.

**Locomotive Engines and Cars.**—The company has fifteen locomotive engines, six of which are new and of the first class. They are of an average weight of about twenty tons each. Four are of less dimensions and of the second class. Five are of still less capacity, and are of the third class. All these engines are in working order, and the whole number is considered adequate for the road for some time to come. Since the Oswego road has been opened, this company has supplied the motive power for all its business.

In addition to this, a portion of the engines having become disabled on the Auburn and Syracuse railroad by accident, this company has daily supplied the requisite power to do the freight business since the ninth day of November last. The supply of engines would therefore seem to be ample for the business of this company.

**Passage, Freight, and Gravel Cars.**—The

stock of passenger cars is seventeen 8 wheel and nine 4 wheel cars, which will be sufficient for the business for some time to come. Having added seven of the best class of cars the last year to the former outfit, it is believed that in this respect no additional outlay will be required, at least for the present year.

The stock of freight cars is also abundant for the present business of the company. It consists of 86 covered 8 wheel cars, and of 19 open 8 wheel cars, and 18 open 4 wheel cars.

This is quite equal to our proportion upon the line, and as the most of them stand idle during the summer, it is not anticipated that there will be required any additional outlay for this service for the year. While alluding to the fact that these cars stand idle during the summer, it is deemed proper to state, that it has been found necessary to construct very extensive building to preserve them from exposure and decay while not in use. There are covered in these buildings more than 1800 feet of double track (or more than two-thirds of a mile of single track). And these are filled for five months in the year with cars that are out of employment. A good covered 8 wheel car for freight, such as the company uses, costs about \$700.

The company has 65 of 4 wheel gravel cars, which are necessary for the grading, gravelling, and reconstruction of the road.—They have cost at least \$10,200.

**Canal Tolls, and Freight.**—The canal tolls imposed upon this line of railroad, have the effect largely to diminish the business of transportation. They are always added to the price charged by the company, and are of course paid by the producer, consumer, or owner of the property transported. Very much of the property carried upon the railroads is of a class that never was carried upon the canal, and to the transportation of which that means of conveyance is not adapted. Pork in the hog is carried upon the railroad to a considerable extent. The expense of packing is saved. It sells as soon as killed at a higher price than could be obtained if it was kept till the spring, when the cheap fatted pork of the Western States reduces the price. Poultry, fresh fish, and other fresh meats, are also sent to market by railroad. In addition to this, fat cattle, sheep, and hogs, are all carried alive upon the railroad. The waste by driving is saved to the owner. In all these, and many other articles that cannot be sent by the canal, a large new encouragement might be offered to the farmers of the interior, if the railroad companies were able to carry them without toll. The price of transportation would be so much reduced as to increase the quantity sent to market. If the railroad company can by the transportation of property derive a portion of the necessary revenue, then it can reduce its fare for the transportation of passengers to a corresponding amount. It will be found that wherever low fare is charged upon railways in other States, the transportation of property form a large part of the whole business.

The following fact shows the effect of claiming canal tolls upon this line:

This company has lately been applied to, from Cortland county, for the price of transportation of butter by railroad to New York, in order to compare it with the price charged from Binghamton by way of the Erie railroad. The canal tolls must determine the question; and hereafter, much of such property in this intermediate range of country will, to avoid tolls, be sent by the Erie railroad, which otherwise would go by this route. The tolls will become, in that event, a legal discrimination against this line, and against the trade of the towns along its route.

**Passenger Trains, and Interruptions by Cattle.**—As soon as the new rail was laid so as to allow of an increased speed, a meeting of the representatives of the several companies comprising the line was held at Syracuse, and a schedule of time was arranged, to take effect on the 23d day of October last; and on the day appointed, the several companies commenced operating the line according to the new schedule. Since then the company has kept its business up to the time agreed upon, with much uniformity. It is believed that the trains are run with as much regularity, and at a speed equal to most of the important lines of railway in the country.—The great number of stops required for the delivery and receipt of mails, and for way passengers, will preclude a higher rate of speed, if all such stops are to be made as heretofore.

It has been supposed that express trains would be run for through mails, and for through passengers, which shall only stop for the necessary supplies of wood and water. In this way only can a higher rate of speed be attained.

As has heretofore been suggested by this company, in reports made to the legislature, there is great hazard in attempting a high rate of speed, on account of cattle and other domestic animals, which are allowed by their owners to run at large. They will stray on to the railroad, if so allowed, though the greatest care may be exercised by the company to prevent it. It is entirely impossible to watch all the fences at night. Cattle and horses will break them down—and the owners of the adjoining lands are often unmindful of their own fences. In the night it is not possible to see them in season to stop and avoid them. With the present iron rail and the track filled up to within two or three inches of the top of the rail with gravel, the train is very liable to be thrown off when running over any obstruction. The hazard of injury to passengers from this cause is greater than from any other, and it will be increased in proportion to the speed, if the owners of domestic animals are not required to restrain their going at large. It is the decided opinion of many persons of sound judgment and experience, that cattle guards, as they are constructed by excavating the track, and required by the general law, are not safe or proper. Whenever cattle get upon the track, and run before the trains, as they are most sure to do, they are generally killed in these guards. This very often occurs. As the nature of the business, and the reasonable

demands of the public are entirely inconsistent with the uncontrolled running at large of cattle; and as the company is held to strict liability to the passenger in case of injury, it is submitted that owners of cattle should keep them enclosed or abide by the consequences. The are required by law, in the State of Massachusetts, to take care of cattle, and to keep them off from the railroad, under penalty.—Accident from this cause is rare in New England, as we are advised.

**Rate of Fare.**—At the same time that the arrangements for increased speed were made, the fare of passengers was reduced upon this road twenty-five per cent. This was as soon as it could be done—because, if it is to result in an increased business, it was indispensable that the iron track should be completed before there was an attempt to provide for a larger business. The reduction took effect on the 1st day of November, and it is hoped that it may produce a satisfactory result. It will require time to test its effect. The present rate of fare on this road is less than three cents per mile for first class passengers.

Two dividends have been made during the year: One of four per cent. on the capital on the 15th of February, amounted to forty thousand dollars. The other was made on the 15th of August last, after the capital had been increased to one million five hundred thousand, and amounted to sixty thousand dollars.

The company has four engine houses.—Those at the terminations of the road are large. One at Oneida and one at Rome are designed only for a single engine. The one at Rome has not been used as an engine house for the past season, and will be applied to some other purpose hereafter.

There are three shops on the road for the repairs and alterations of engines and cars.—The principal shop is at Syracuse. There is one at Oneida and another at Utica.

The number of engines and cars has been stated above.

There were two regular passenger trains daily upon the road each way until the 26th day of April, when a third train was put on. The third train did not run on Sunday. Since the 16th of July another train was taken off on Sunday.

The whole number of miles run by passenger trains during the year, was 100,594 miles.

The whole number of mile run by freight trains during the year, was 49,000 miles.

The whole number of miles run by all other trains, was 54,000 miles.

Whole number of miles by engines and trains, 203,594 miles.

The average number of men employed during the year has been about 550. These consisted of mechanists, blacksmiths, carpenters, joiners, car-makers, superintendents, clerks, engineers, and common laborers.

**Statement of the number of persons injured in life or limb during the year 1848.**—A man by the name of Matthew Conoly was found on the track at Oneida after he had been run over by the train. He died soon after. He was an intemperate man, and was supposed

to have been intoxicated when he was run over.

A man by the name of John Downwald was found dead upon the track west of Rome. No account can be given of the manner of his death, whether he was laying upon the track resulting from a fit or disease, or whether he was run over when walking. The engineer did not see him, and the best inference is that he must have been laying on the track.

A boy at Rome was jumping on the cars contrary to directions, and fell under the wheels. He was so injured that he died in a few days.

Three laborers upon the road have been seriously injured by falling under the trains and being run over. They were all employed upon the gravel trains. Two of them were injured in jumping on to the trains when in motion. One of them fell from the gravel car when standing up. The men were always cautioned against exposing themselves, but is impossible to make them take proper care.

A passenger on approaching the Manlius station, jumped from the train when in motion, against the caution of the conductor, and was somewhat injured.

Another passenger at Green's Corners, not getting on to the train in season, attempted to run after it, and in doing so fell into a culvert and was injured.

None of these accidents in any measure arose from the carelessness or negligence of any person in the employment of the corporation.

The several tables hereto annexed, and which forms a part of this report, show the several matters as to which explanations and a report are required to be made.

**Statement of "the amount expended for the purchase of land, for the construction of the road, for buildings, and for engines and cars, respectively," by the Syracuse and Utica railroad company, in the year 1848.**

Amount expended for land.....	\$4,583 16
For construction of new track.....	\$302,313 76
" Permanent fixtures, including buildings.....	9,455 11
" New locomotives.....	39,583 72
" New freight and other cars.....	35,464 01
" New passenger cars.....	13,969 69
" construction of second track.....	46,000 00

**Statement of "the amount and nature of indebtedness, and amount due the Syracuse and Utica railroad company," made Jan. 1, 1849.**

The company owe the sum of \$80,000 on bonds which were issued two years ago.—Half of this is due January 1, 1850, and the remainder January 1, 1851. The money borrowed on these bonds was applied to the purchase of iron, &c., for the new track.—The interest is payable half yearly.

In the progress of the business there is a constant indebtedness from month to month, and which is mainly paid every month. All the labor employed on the road, of every description, is paid monthly. There are, however, running accounts for materials, for sup-

plies, etc., that are not always actually paid every month, though they are payable on demand. Of this nature are accounts for engines, cars, oil, iron, etc.

**Amount due to the Corporation.**—There is due to this company from the Albany and Schenectady railroad company the sum of \$3658 41, payable in five annual payments, with interest.

There is due to this company from the Oswego and Syracuse railroad company an amount unadjusted, for the use of engines and cars, and for the construction of an embankment at Syracuse.

There is due from the Auburn and Syracuse railroad company an amount unadjusted, for the use of locomotive engines, and the service of men on the engines in drawing freight from and to Auburn since the 14th day of Nov. last.

There is due to this company, from sundry persons, the sum of \$29,453 58 for old iron sold them.

There is due to the company, from Samuel R. Allard, of Canastota on bond and mortgage, for land sold to him, the sum of \$400 58.

The foregoing embraces the amount due to the company, except the current monthly dues for freight, which are paid generally during the month for the earnings of the preceding month, and also except the amount due for the transportation of the mail. This compensation has not been paid regularly, and it is claimed that a sufficient allowance has never been made by the post-office department.

**Statement of receipts by the Syracuse and Utica railroad company in the year 1848.**

98,889½ through passengers to Oct. 31, 1848, at \$2.....	\$197,779 00
15,261¼ thro' passengers to Nov. and Dec., at \$1 50.....	22,892 25
114,151 total thro' passengers.....	220,671 25
27,290½ Emigrant passengers.....	22,232 40
75,369 Way ".....	53,928 33
216,807½ Total pass'rs. Total receipts.....	296,831 98
Received for trans. of Freight.....	70,491 60
" " U. S. Mail.....	13,876 38
" Miscellaneous sources.....	2,169 83
" Sale of old materials.....	21,301 65
" 1st issue of New Stock.....	223,000
" 1st instalmt on 2d issue of New Stock.....	50,000
	\$677,671 44

\* This amount includes the earnings of previous years, which has not heretofore been promptly paid.

**Statement of amount paid out for repairs, engines, cars, buildings and salaries, by the Syracuse and Utica railroad company in 1848.**

The amount paid for salaries is \$2850 yearly, and is included in the table on page 16, under the head of "Superintending," etc. All the other officers of the company are paid monthly, and hold their offices from month to month.

The amount paid for repairs of road, which includes repairs of all buildings, is.....	\$22,323 03
" Locomotive engines.....	12,823 76
" Passenger cars.....	2,701 20
" Freight and other cars.....	6,426 21



"The modern railway system of Europe may be said to date from 1830, when the construction, by Mr. G. Stephenson, of the Liverpool and Manchester railway, with its locomotive engines, was completed. After that date we heard no more of such prophecies as the following (from the *Quarterly Review*, in 1835,) which it is not useless to record as a lesson of caution to us for the future:—'As to those persons who speculate on making railways generally throughout the kingdom, and superseding all the canals, all the wagon-mails and stagecoaches, postchaises, and in short, every mode of conveyance by land, and by water, we deem and their visionary schemes unworthy of notice. What, for instance, can be more palpably absurd and ridiculous than the following paragraph'—in which a prospect is held out of locomotives travelling twice as fast as stagecoaches. 'We should as soon,' adds the reviewer, 'expect the people of Woolwich to suffer themselves to be fired off upon one of Congreve's ricochet rockets as trust themselves to the mercy of such a machine, going at such a rate.' The modern railway system has, however, not only done this, but it has given rise to new habits in the present generation, and has proved to be the great mechanical invention of the nineteenth century, as the steam engine was of the eighteenth. As it is still in its infancy, it is especially the province of statistical inquiry to watch its growth, so that on the one hand timely remedies may be applied to its defects, and on the other, freer scope may be given to its beneficial tendencies. Valuable papers have been contributed by Messrs. Laing, Porter, Graham, and others, analyzing the traffic on railways during the infancy of the system to the year 1843. Shortly before that period there had been a pause in railways. During two years only five miles had been sanctioned, but the period which has since elapsed comprises the memorable mania years of 1845 and 1846. Under this excitement intelligence and emulation have been stimulated among the managers of railways to the utmost, and the system has rapidly advanced. The consolidation of lines under a few great companies by the process styled amalgamation, has proceeded; the atmospheric, an entirely new system of traction, has been brought forward; the electric telegraph, conveying intelligence at the rate of 250,000 miles a second, has been widely introduced; express trains, travelling at nearly the highest attainable speeds, have been established—and the length of railways in operation has been doubled. It therefore becomes a matter of interest to inquire to what the results of so active a period point. Have low fares answered? Has the third class traffic, the most important to the bulk of the people, been encouraged, and has it been found wise, not only for the users but for the owners of railways, to encourage it or the reverse? Has the increase of speed been successful, and are we likely to travel faster or slower hereafter? How have the receipts kept up while the length of railway



has been doubled? Did the first 2,000 miles get the cream of the traffic, as has often been thought, and has the average receipt per mile consequently fallen off? Should the experience of the past, in short, give us confidence in urging on the system at the extraordinary rate at which we are now doing it, or not? In the following investigation and collection of facts it has been attempted to throw some light upon these points: the recent publication of the official railway returns for 1846 and 1847 afforded peculiar facilities for the purpose. The following paper refers to English, Scotch and Welch lines only—the Irish lines are excluded, the economical condition of Ireland being different from that of this country, and there being but few railways open in that country:—

*Comparative Lengths of Railway open in 1843 and 1847, and Receipts thereon.*

The lengths of English, Scotch and Welch railways open June, 1843, were.....1,990  
Ditto, open at the commencement of 1848....3,597  
The gross receipts returned for the year 1842, were.....£4,740,000  
Ditto for the year ending, June 30, 1847...£8,326,772

"After making the necessary corrections in the above figures, the average receipts per mile of railways in 1842, were £2,489; in 1847, £2,596. We therefore arrive at the important fact, that, although the mileage of our lines has been doubled, the receipts have been more than doubled. This must be regarded as a favorable general feature in the state of railways. There was much reason to fear that, as the first railways ran between the great towns, or traversed the manufacturing districts, the railways which were next opened would show a great falling off in receipts. Hitherto, then, we find that this is not so—a fact which may give us confidence as regards the great length of railway which has been sanctioned by Parliament, but which is not yet open.

*Lines Sanctioned but not Open.*—The length of railway sanctioned by Parliament at the commencement of 1848, but not then open, was 7,150 miles. a considerable portion of this is in progress, more or less rapid. On the 1st of May, 1847, 5,209 miles were returned as in progress, on which 218,792 persons were employed, or 42 per mile.\*—These new railways are principally designed for the accommodation of the agricultural parts of the country. We will presently refer to the prospects of railways in such districts. When the railways now in contemplation are completed and it is probable that the greater portion will be so in the course of the next five years, we shall have upwards of 10,000 miles of railway open—on which, judging from the numbers employed on lines now open,† (viz., 14 per mile,) 140,000 persons will be permanently employed, at good wages—representing, at five to a family, three quarters of a million of the gross population. The importance of this addition to our internal communications will be appreciated, when it is remembered that there are only about 4,000 miles of inland navigation and 30,000 miles of turnpike road open for traffic in the country.

*"Analysis of Traffic—General Features.*  
The gross traffic for the year ending June

30, 1847, was, as we have seen, £8,366,000. There were conveyed, during that year, from the returns of the Board of Trade, in round numbers, 7,000,000 tons of merchandise and goods, 8,000,000 tons of coal, 500,000 horned cattle, 1,500,000 sheep, and 100,000 horses. Of the gross sum, £8,366,000, the passenger receipts were.....£5,024,000  
The receipts from all other sources—goods, cattle, carriages, parcels, mails, &c.....3,342,000  
£8,366,000

In every £100 of receipts, the passenger traffic, therefore, forms 60 per cent.; the traffic receipt from other sources, 40. In 1842, these proportions were as 64 to 36. The proportions of traffic receipts from other sources than passengers (being principally goods and cattle traffic) have thus increased, since 1842, as 40 to 36, or 11 per cent. The total number of passengers carried in the year (ending June 30,) 1847, was 47,484,134, as compared with, in 1842, 22,403,478. The average distance travelled by each passenger was, in 1842, 13 miles; in 1847, it was 16 miles. the numbers and proportions of classes were—

	In 1847.	In 1842.
First class.....	14.2	20.2
Second class.....	38.3	45.4
Third class.....	47.5	34.4

Thus, the third class passengers (which have increased in number since 1842, from 6,000,000 annually to 21,000,000,) now form nearly half of the whole number travelling, whereas, in 1842, they formed only about one-third. Only one-third of the third class passengers have availed themselves of the Parliamentary trains, arbitrarily, (and, as it appears to me, unfair,) imposed upon railway companies in 1844. The following table, comparing the fares of the metropolitan railways in the year ending June, 1843, with those in the year ending June 1847, shows the great reduction which has taken place in fares during the last four years. To make the comparison more appreciable, the fares are taken as for 100 miles in pence.

Railway.	Fare for 100 Miles.					
	1st. Class.		2nd Class.		3d Class.	
	1843	1847.	1843	1847.	1843.	1847.
London & North-western.....	334.8	218.1	241.2	144.6	131.2	93.3
Great Western.....	303.1	274.4	208.5	187.8	118.3	100.0
London & South Western.....	312.0	245.0	210.0	168.0	120.0	96.0
Eastern Counties.....	294.1	210.0	227.4	141.5	164.7	93.3
North'n & Eastern.....	217.4	—	165.4	—	110.6	—
Southeastern.....	227.0	214.0	150.0	152.0	87.5	90.0
Lon. & Brighton.....	350.0	263.0	225.0	171.0	150.0	109.0
Average.....	303.5	237.4	210.3	160.8	128.6	96.7
Difference per ct..	—	21.8	—	23.8	—	25.0

This reduction in fares, coupled with the increase in the number of trains, and the speed of travelling, must be regarded as the principal cause of the great increase of the number of passengers since 1848.

"We have already seen that the numbers in 1847 and 1842, are as 47,484,134 to 22,403,478. If we take into account the number miles opened at those dates respectively,

the annual number per mile was in 1842, 11,772, and in 1847, 14,806.

"The proportion of third class passengers has, we have seen, thus satisfactorily increased between 1842 and 1847. The third class traffic has, however, developed itself very differently on different lines; and it may be well to inquire into this. The statement subjoined, shows the third class traffic of two Metropolitan companies—the (the Eastern Counties and the Great Western;) two North of England companies—the (the Lancashire and Yorkshire and the Newcastle and Berwick;) and two Scotch companies (the Edinburgh and Glasgow and Glasgow and Greenock.)

Year ending June 30, 1847.

Name of Railway.	Length in Miles.	Number 3rd class Passengers conveyed.	Proportion in every hundred of 3rd class Passengers
Glasgow, Paisley & Greenock.....	..	059,534	83.3
Newcastle & Berwick.....	65½	944,890	79.5
Edenburg & Glasgow.....	46	836,025	72.8
Lancashire & Yorkshire.....	109	2,090,624	72.3
Midland.....	285	2,366,892	65.4
Eastern Counties.....	177	1,044,158	50.3
Great Western.....	104½	419,663	14.6

From this it appears, that the Great Western company, on a line 241 miles long, have only carried 419,663, the Edenburg and Glasgow company, on a line 46 miles long, have carried 836,025; the Midland company, 285 miles long, 2,366,892; and that while, on the Great Western, only 15 out of every 100 passengers conveyed are third class, on the Eastern Counties 50 out of every 100, and on the Glasgow, Paisley, and Greenock, 83 out of every 100, are third class passengers. Although it is true, that the different character of the population and other circumstances will affect, to some extent, the relative number of third class passengers on different lines, the disparity here is so great, that we can come to no other conclusion, than that the arrangements of such a line as the Great Western as to third class passengers must be such as to preclude hundreds of thousands of third class passengers yearly from using the railway who, with greater facilities, would be glad to use it. I say this with confidence, because, as manager of the Glasgow and Greenock railway, where the third class system has been more developed than on any line in the country, (and where we carried passengers at a profit for one farthing a mile,) I had an opportunity of observing the real advantage and comfort which very cheap travelling is to the working class. As the results of the working of that line afforded a remarkable instance of the effects of low fares, I have thought that it might not be uninteresting to record them. The river Clyde

\* In this return, the number of miles returned as in progress, are more than those really in construction, the number of men employed per mile is less than the truth.

† These returns are not complete, and they require some correction, in respect to the same articles being sometimes conveyed over several different lines, and therefore counted over more than once.



runs beside the Glasgow, Paisley and Greenock railway, which is 23 miles long. The steam boats have long afforded an excellent mode of transport between Glasgow and Greenock, the fares by boat before the railway opened being from 1s to 2s, and the time occupied was about two hours. Glasgow, with a population of 270,000, was at one end of the line, Greenock, with a population of 36,000, at the other end of the line, and various summer watering place, lie at the mouth of the Clyde, below Greenock. On the line where Paisley (population 60,000) and Port Glasgow (population 7,000.) Between Glasgow and Paisley was a canal on which there were passenger boats drawn by horses at a speed of six miles per hour. These facilities gave rise to a great traffic before the railway was opened—the yearly number travelling along the course of the railway being 1,185,340, and the average fare 1s 4d. Notwithstanding this, after the railway was opened (in 1843) the numbers travelling by all means of conveyance were found to exceed 2,000,000, or to have increased 100 per cent., the average fare having in the meantime fallen to 10d. This was the gross result; but the fares of the railway (originally 2s 6d, first class and 1s 6d, second class for 23 miles) were varied from time to time; and as I closely observed the effects of these variations, having caused an account to be taken of the number travelling by steam boat and canal as well as by railway, it may be well to state the results of these variations of fares:—

**First Alteration.**—In 1842, uncovered, open, third class carriages, at a fare of 6d for the 23 miles, or about  $\frac{1}{3}$ d, per mile, were introduced on the railway between Glasgow and Greenock, where upon the annual number of railway passengers between those places increased 224,000; being an increase of 32 per cent. of the total number travelling, either by railway or steamboat. The number of first and second class fell off at the same time 30 per cent., the passengers having transferred themselves from the higher class carriages into the open third class carriages, tempted by the difference of fares between 4-5d per mile and  $\frac{1}{3}$ d per mile. The gross receipts, however, increased simultaneously 15 per cent.; the working expenses, on the other hand, did not appreciably increase, although the average number of passengers, per train, increased from 72 to 117.

**Second Alteration.** The third class fares were subsequently, in 1843, raised from 6d to 1s, with the hope of increasing the revenue. The whole number travelling by railway and steamboat immediately fell off 18 per cent. The first and second class railway passengers increased by 10 per cent., but the gross receipts fell off more than 10 per cent. The effect was also tried of making the third class carriages more comfortable, by covering them in. This was found not to increase the number travelling, but it did reduce the number of first and second class passengers by 16 per cent., and therefore caused considerable loss to the company. The same experiment was repeated on the second class

carriages; they were made more comfortable by inserting glass windows instead of wooden shutters, and by carrying the interior partition higher. The number of first class passengers shortly fell off by 12 per cent.; but beyond this the second class passengers did not appreciably increase; this experiment, therefore, also resulted in loss. The results of these experiments were then—1st. That a reduction of fares to  $\frac{1}{3}$ d per mile even from so low a rate  $\frac{1}{3}$ d per mile increased the number travelling, by nearly a quarter of a million; or by two-thirds of the whole population of the district. As these people were generally of the less affluent classes, it appears that they were actually drawn out of the noisome streets of Glasgow to the north of the Clyde, by the temptation of a very low fare, and immediately that the fare was raised they were driven back again into the city. 2nd. That under the circumstances of the line in question, cheap and rapid travelling increased the number travelling; but improving the lower priced carriages did not, however, appear to act in the same way, but merely tempted passengers from the higher class carriages—those from the second class into the third class carriages, and from the first to the second class:—of course it by no means follows that similar results would ensue on lines in other localities; each case must be determined by its peculiar conditions. 3d. That no limit can be assigned to the number of travellers which cheapening and quickening the means of conveyance will create. The introduction of the railway, even where steamboats already afforded a most pleasant, rapid, and cheap communication, increased, we see, the number travelling from 110,000 to 2,000,000—2,000,000 being five times the whole population of the district. I doubt whether either at home or abroad so large a proportion of travellers to the whole population is to be found.—The traffic between Glasgow and Paisley is probably the most remarkable instance on record of the increase of travelling caused by increased facilities. In 1814, there was only one coach a week between Glasgow and Paisley, conveying about 2,000 passengers per annum: we multiply this by five, to allow for the greater number of gigs and private vehicles then in use, we only get 10,000 passengers per annum conveyed between the two places. In 1842, the number travelling by public conveyance between Glasgow and Paisley, were upwards of 900,000. Now as the population between 1814 and 1842, had only about doubled itself, while the traffic, as we see, had multiplied itself ninety fold, it follows that the increased facilities of transport had increased the number travelling relatively to the population forty-five times; that is to say, that for every journey which an inhabitant of Glasgow or Paisley took in 1814 he took forty-five journeys in 1842. These results, I conceive, place it beyond a doubt, that we should spare no effort to make railway travelling cheap and within the reach of all classes.

"Now, there is only one true way of en-

couraging cheap travelling, and that is by keeping down the original cost and the annual expenses of railways. All the other contrivances, which the public are inclined to trust, such as legislative restriction on profits, and so on, are mere quackery.—Even competition is inapplicable to railways, and is not to be relied on.\* Mr. R. Stephenson, the engineer, put the whole case into one sentence when he said, to have combination is practicable, competition is impossible. The experience of all railway competition shows that this is true; when, therefore, under the plea of competition unnecessary outlay is being incurred, the public may rest assured that they will ultimately suffer for it in the charge they will have to pay.

"Mr. Hill Williams, the actuary, has compiled some useful tables, to show arithmetically how far a remunerative charge for the conveyance of passengers and goods on railways is modified by the original cost, and other circumstances.

"The following is an extract showing the effect of increase cost of construction—

"Total yearly traffic, number of passengers or tons of goods, 90,000.

*Fixed charge per mile on every Passenger or ton of Goods requisite in order to give common interest, 5 per cent., on the outlay.*

Original cost of construction per mile.	Fixed charge per mile.
£15,000.....	1-00d.
20,000.....	1-33
25,000.....	1-66
30,000.....	2-00

We see from this that the fixed charge on ev-  
ton of goods, or passengers must average 2d.  
per mile to return common interest on a rail-  
way costing £30,000, whereas if the railway  
cost £20,000  $\frac{1}{3}$ d. per mile would be suffi-  
cient.

"After a series of similar investigation, the author concludes as follows:—The re-  
sult of the preceding inquiry is, it appears  
to me, on the whole satisfactory. The rail-  
way system has doubled itself in the last  
three years. Fares have been greatly reduc-  
ed. Third class passengers have largely in-  
creased. The importance and value of the  
traffic in goods and cattle relatively to the  
passenger traffic, have become more apparent.  
The number of trains is greater and the  
speed of some of the trains has been effected  
without any falling off in the average receipts  
on each mile of railway in working, but  
with an increase probably sufficient to meet  
the increase of the working expenses atten-  
dant on the increased accommodation now  
afforded by railways; whatever falling off in  
dividends there may have been, is, therefore,  
to be attributed, in a general view of the sub-  
ject, to the capitalisation of loans and the cre-  
ation of fictitious capital by the purchase of  
railways at premiums, and, therefore, at sums  
beyond what they actually cost. These be-  
ing profitable speculations when shares were  
high, were pushed to such an extent as now  
to press severely on the original share capital

\* Evidence Select Committee on Railway Act  
Enactment, 1846.

† Appendix No. 7, Select Committee on Railway  
Act Enactments, 1846.



of railway companies. The great evil of the last three years is the extravagant outlay of money which has taken place, an outlay which, instead of being checked by the legislature, has been encouraged to the utmost by the mode of inquiry adopted. This has inflicted on the railway system a burden which it will never be able to throw off, and which the public will always have to bear with them in a higher rate of charge for conveyance than would with common prudence have been necessary. It only remains to stop the extravagance with a strong hand. The very existence of the railway companies depends on the economy they can practice in making and working their railways; and nothing which on the face of it involves increased outlay, be it diversity of gage and its consequence—the mixed gage, or the more plausible plea of competition, should be countenanced either by railway companies or by the legislature if we wish to secure for ourselves the full fruits of that admirable invention which England and English engineers who have followed in the steps of George Stephenson have given to the world."

**Experiments with Galvanized Wire and Hemp Ropes.**—An experiment was tried last week in Woolwich Dockyard, to ascertain the comparative strength of wire and hemp ropes. A wire rope, three inches round, and a hemp rope of three strands, hawser laid, common make, seven inches round, were spliced together, and placed in the testing machine, and on the hydraulic power being applied, the hemp rope broke in the middle on the strain reaching 114 tons, the wire rope remaining apparently as strong as when the experiment commenced. A wire rope, 3½ inches round, was then spliced with an 8 inch hemp shroud rope, and on the power being applied the hemp rope broke in the middle, with a strain of 10½ tons, the wire rope continuing apparently uninjured.

The *Carlisle Journal* gives the following particulars of Mr. Stephenson's first celebrated engine, the "Rocket," which was bought in the year 1837, from the Liverpool and Manchester, by Mr J. Thompson, of Kirkhouse, the lessee of the Earl of Carlisle's coal and lime works. Here the engine was worked for five or six years on the Midgheolme line, a local line, belonging to Mr. Thompson, for forwarding his coals from the pits towards Carlisle. Soon after the engine was placed on the line the great contest for East Cumberland took place, when Sir J. Graham was superseded by Major Aglionby; and it was used for conveying the Alston express with the state of the poll from Midgheolme to Kirkhouse. Upon that occasion the "Rocket" was driven by Mr. Mark Thompson, and accomplished its share of the work, a distance of upwards of 4 miles, in 44 minutes; thus reaching a speed of nearly equal to 60 miles an hour. On the introduction of heavier and more powerful engines, the "Rocket" was "laid up in ordinary," in the yard at Kirkhouse, where it now stands, no less a monument of the genius of the inventor, than as a mark of the esteem in which his memory is held by Mr. Thompson. Such an engine, says the journal—the first constructed on the principle which has brought railways to such a height of perfection in this country and throughout the world—ought to have its abiding place in the British Museum.—*Artizan*.

**Messrs. Staité and Petrie's Patent Electric Light.**—This invention has excited considerable interest from the apparent simplicity of the means employed, and from the important results which will follow, should it become commercially successful. The light is evolved from two points of charcoal, placed perpendicularly, nearly in contact, and brought into a state of intense action by a galvanic battery. The state is not one of combustion, one charcoal point being merely abraded, as it were, while the length of the other is gradually increased. This renders a self-acting movement necessary to

keep the points in their proper relative positions.—The charcoal points are placed within a glass receiver, the atmospheric air being excluded. The light is one of intense brilliancy. The patentees state that it can be supplied at a cost not exceeding one penny an hour for a light equal to that of 100 wax candles.—*Artizan*.

### CORROSIVE SUBLIMATE.

THIS article now extensively used for the preservation of timber, is manufactured and for sale by POWERS & WEIGHTMAN, manufacturing Chemists, Philadelphia.  
Jan. 20, 1849.

### DIRECT ACTION ENGINES FOR STEAMBOATS.

THE PATENT DOUBLE CYLINDERS,

AND ALSO

THE ANNULAR RING PISTON ENGINES, of Messrs. Maudslay, Sons & Field, of London, may be built in the United States, under license, which can be obtained of their agent,

THOMAS PROSSER, C. E.,  
28 Platt street, New York.

May 6, 1848.

**CHILLED RAILROAD WHEELS.**—THE undersigned, the *Original Inventor of the Plate Wheel* with solid hub, is prepared to execute all orders for the same, promptly and faithfully, and solicits a share of the patronage for those kind of wheels which are now so much preferred, and which he originally produced after a large expenditure of time and money.

A. TIERS.

Point Pleasant Foundry,

He also offers to furnish Rolling Mill Castings, and other Mill Gearing, with promptness, having, he believes, the largest stock of such patterns to be found in the country.

A. T.

Kensington, Philadelphia Co.,  
March 12, 1848.

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THE SUBSCRIBER has on hand a good assortment of his best Leveling and Surveying Instruments, among them his improved Compass for taking angles without the needle—also Bells, suitable for Churches, Railroad Depots, etc.

ANDREW MENEELY.

West Troy, May 12, 1847.

1y\*21

### TO MACHINISTS & MANUFACTURERS.

The Subscribers have taken the READ, & CAR AXLE MANUFACTORY—and are prepared to execute orders for Axles of every description, and Wrought Iron Shafts for Steamboats, Mills, etc., made from superior material, at short notice. Address Reading, Pa.

ANDREW TAYLOR & CO.

August 5, 1848—3m\*

### RAILROAD IRON—SHEET IRON—BRASIER'S RODS—HOOPS—SCROLL—BANK'S BEST—& OTHER GOOD MAKES OF ENGLISH IRON.

100 Tons Railroad Iron—Staffordshire make—56 pounds per yard—shipped from Liverpool 20th July, expected to land on wharf from 10th to 20th September.

Also have Invoices of Sheet Iron, Brasier's Rods, Hoops, Scroll, and Band Iron, Banks best, and other good makes of English Rolled Iron, to arrive, suitable for Railroad Axles, etc., etc., equal in quality to American Rolled Iron. I have agency of several best makers in England and Wales, and can import for Railroad Companies, and others, on best terms, and at much less prices than they can be supplied from American Mills.

DAVID W. WETMORE,

218 Water street.

New York, Sept. 9, 1848.

3w\*

### NEW PATENT CAR WHEELS.

THE SUBSCRIBERS ARE NOW MANUFACTURING Metallic Plate Wheels of their invention, which are pronounced by those that have used them, a superior article, and the demand for them has met the most sanguine expectations of the inventors. Being made of a superior quality of Charcoal Iron, they are warranted equal to any manufacture.

We would refer Railroad Companies and others to the following roads that have them in use. Hartford and New Haven, Connecticut River Railroad, Housatonic, Harlem, Farmington, and Stonington, SIZER & CO.

January 29, 1848. to

Springfield, Mass.

### WILLIAM JESSOP & SONS, CELEBRATED CAST-STEEL.

The subscribers have on hand, and are constantly receiving, from their manufactory,

PARK WORKS, SHEFFIELD,

Double Refined Cast Steel—Square, flat & octagon. Best warranted Cast Steel—Square, flat & octagon. Best Double and Single Shear Steel—Warranted. Machinery Steel—Round.

Best and 2d gy. Sheet Steel—for Saws and other purposes.

German Steel—flat and sq., "W. I. & S." "Eagle" and "Goat" Stamps.

Genuine "Sykes," L Blister Steel.

Best English Blister Steel, etc., etc., etc.

All of which are offered for sale on the most favorable terms, by WM. JESSOP & SONS,  
91 John Street, New York.

Also by their Agents—

Curtis & Hand, 47 Commerce St., Philadelphia.

Alex'r Fullerton, & Co., 119 Milk St., Boston.

Stickney & Beatty, South Charles St., Baltimore.

May 6, 1848.

**SPRING STEEL FOR LOCOMOTIVES,** Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,

Albany Iron and Nail Works,

ly

**RAILROAD IRON AND LOCOMOTIVE**

Tyres imported to order and constantly on hand

by A. & G. RALSTON

Mar. 20th

4 South Front St., Philadelphia.

**RAILROAD IRON—2500 TONS HEAVY**

Rail, now landing, and expected shortly to arrive, for sale on most favorable terms by

DAVIS BROOKS & CO.

July 19th, 4

68 Broad street, New York.

### RAILROAD IRON.

1000 tons T Rails, weighing about 60lbs. to the

yard, of the latest and most approved pattern,

for sale by BOORMAN, JOHNSTON, & CO.,

119 Greenwich st., New York.

Jan. 20, 1849.

6w

### DEAN, PACKARD & MILLS,

MANUFACTURERS OF ALL KINDS OF

### RAILROAD CARS,

SUCH AS

PASSENGER, FREIGHT AND CRANK CARS,

— ALSO —

SNOW PLOUGHS AND ENGINE TENDERS

OF VARIOUS KINDS.

CAR WHEELS and AXLES fitted and furnished

at short notice; also, STEEL SPRINGS

of various kinds; and

SHAFTING FOR FACTORIES.

The above may be had at order at our Car Factory,

REUEL DEAN,

ELIJAH PACKARD,

ISAAC MILLS,

SPRINGFIELD, MASS.

1y48



**JAMES LAURIE, Civil Engineer.**  
No. 23 RAILROAD EXCHANGE, BOSTON, MASS.  
Railroad Routes Explored and Surveyed. Estimates, Plans and Specifications furnished for Dams, Bridges, Wharves, and all Engineering Structures.  
October 14, 1848. 6m\*

**MASONS AND STONECUTTERS WANTED—AT THE U. S. NAVY YARD, NEAR PENSACOLA.**—Twenty good Stonecutters can find immediate employment at dressing granite by the superficial foot. The beds and builds of the stone will alone be dressed—the face being left rough. For this work the high price of 25 cents per superficial foot will be allowed on the stone now in the yard, and the tools sharpened.

Those who are Masons as well as Stonecutters, will be preferred: and, more especially, those who are disposed to work, when necessary, in Diving Bells. The works in progress are very extensive, and will, probably, afford constant employment for some years.

To good workmen, of the above description, when employed by the day, the wages will be \$2.50, on the ten hour system; to which, an addition at the rate of one dollar per day will be made for such time as they may be employed in the Diving Bells. Or at the rate of \$3.50 per day.

The Diving Bells, and Machinery, are constructed on the most approved plans, and will be abundantly supplied with air and light, and the water kept low in the Bells, so that no inconvenience will be felt by the workmen, the depth being only from 25 to 30 feet.

Two good MACHINISTS can also find employment in the Navy Yard. Apply in person, to  
**JAMES HERRON,**  
Civil Engineer, Navy Yard.  
Jan. 1. 10t

### RAILROAD IRON.

**THE TRENTON IRON COMPANY ARE** now turning out one thousand tons of rails per month, at their works at Trenton, N. J. They are prepared to enter into contract to furnish rails of any pattern, and of the very best quality, made exclusively from the famous Andover iron. The position of the works, on the Delaware river, the Delaware and Raritan canal, and the Camden and Amboy railroad, enables them to ship rails at all seasons of the year. Apply to

**COOPER & HEWITT, Agents,**  
17 Burling Slip, New York.

October 30th, 1848.

**MANUFACTURE OF PATENT WIRE** Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by  
**JOHN A. ROEBLING, Civil Engineer,**  
Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 92v11y

### NORWICH CAR FACTORY, NORWICH, CONNECTICUT.

**AT** the head of navigation on the River Thames, and on the line of the *Norwich and Worcester Railroad*, established for the manufacture of

**RAILROAD CARS,**

**OF EVERY DESCRIPTION, VIZ:**  
PASSENGER, FREIGHT AND HAND CARS,

**ALSO, VARIOUS KINDS OF**  
ENGINE TENDERS AND SNOW PLOUGHS.

**TRUCKS, WHEELS & AXLES**

Furnished and fitted at short notice.

Orders executed with promptness and despatch.

Any communication addressed to

**JAMES D. MOWRY,**

General Agent,

Norwich, Conn.,

Will meet with immediate attention.

1y8 1y36



### RIDER'S PATENT IRON BRIDGE.

**THE RIDER IRON BRIDGE** having now been fully tested on the Harlem Railroad, by constant use for about eighteen months, and found to answer the full expectations of its most sanguine friends, is now offered to the public with the utmost confidence as to its great utility over any other Bridge now known.

The plan of this Bridge is to use the iron so as to obtain its greatest longitudinal strength, and at the same time is so arranged as to secure the combined principles of the *Arch*, *Suspension* and *Triangle*, all under such controlling power as causes each to act in the most perfect and secure manner, and at the same time impart its greatest strength to the whole work.

**THE RIDER IRON BRIDGE COMPANY** are prepared to furnish large quantities of Iron Bridging for Rail Road or other purposes, made under the above Patent, at short notice, and at prices far more economical than the best wood structure, and on *certain conditions*, the first cost may be made the same as wood.

Models, and pamphlets giving full descriptions of the *RIDER BRIDGE*, with certificates based on actual trial from undoubted sources, will be found at the office of the Company, **74 BROADWAY, up stairs,** or of **W. RIDER & BROTHERS, 58 Liberty Street,** where terms of contract will be made known, and where orders are solicited.

November 25, 1848.

**M. M. WHITE,**  
Agent for the Company.

### LAP—WELDED WROUGHT IRON TUBES

FOR

### TUBULAR BOILERS,

FROM 1 1-2 TO 8 INCHES DIAMETER.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive Marine and other Steam Engine Boilers.

**THOMAS PROSSER,**

Patentee.

28 Platt street, New York.

### ENGINEERS' AND SURVEYERS'

### INSTRUMENTS MADE BY

**EDMUND DRAPER,**

Surviving partner of

**STANCLIFFE & DRAPER.**



No 23 Pear street, below Walnut,  
1y10 near Third, Philadelphia.

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to *Ellicott's Scales*, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. *E. Ellicott* has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

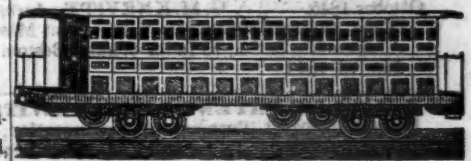
We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

**ELLICOTT & ABBOTT.**

Factory, 9th street, near Coates, cor. Melon st.

Office, No. 3 North 5th street,  
Philadelphia, Pa.

### CAR MANUFACTORY, CINCINNATI, OHIO.



**KECK & DAVENPORT WOULD RESPECTFULLY** call the attention of Railroad Companies in the West and South to their establishment at Cincinnati. Their facilities for manufacturing are extensive, and the means of transportation to different points speedy and economical. They are prepared to execute to order, on short notice, Eight-Wheeled Passenger Cars of the most superior description, Open and Covered Freight Cars, Four or Eight-Wheel Crank and Lever Hand Cars, Trucks, Wheels and Axles, and Railroad Work generally. Cincinnati, Ohio, October 2, 1848. 411t

### RAILROAD IRON.

**THE MOUNT SAVAGE IRON WORKS,** Allegheny County, Maryland, having recently passed into the hands of new proprietors, are now prepared, with increased facilities, to execute orders for any of the various patterns of Railroad Iron.—Communications addressed to either of the subscribers will have prompt attention.

**J. F. WINSLOW, President**

Mount Savage Iron Co., Troy, N. Y.

**ERASTUS CORNING, Albany.**

**WARREN DELANO, Jr., N. Y.**

**JOHN M. FORBES, Boston.**

**ENOCH PRATT, Baltimore, Md**

November 6, 1848.

### THE NEWCASTLE MANUFACTURING

Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gear—ing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also, with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to *Mr. William H. Dobbs*, Superintendent, will meet with immediate attention.

**ANDREW C. GRAY,**

445 President of the Newcastle Manuf. Co.



**HUDSON RIVER RAILROAD.**  
**NOTICE.—PROPOSALS FOR SPIKES.**

Proposals will be received at the office of the Company, No. 54 Wall-street, until the 15th day of February next, for a quantity of Wrought Iron Railroad Spikes, from fifty to two hundred tons, (of 2000 lbs.) to be delivered at such wharf or wharves on the line of said Railroad as may be designated by the Chief Engineer in the employment of said Company. The Spikes to be nine-sixteenths of an inch square, headed and sharpened, suitable for the purpose, and to be of such lengths, not less than six, nor more than seven inches, as may be required by said Engineer. The Spikes to be made of the best quality of iron, and put into suitable kegs, with weight and size of Spike marked on the head.

The Directors reserve to themselves the right to accept or reject proposals that may be offered, as they may consider the interest of the Company to require.

JOHN B. JERVIS, Chief Engineer.  
Office Hudson River Railroad Co.,  
New York, 10th Jan., 1849. } 3t2

**FULLER'S PATENT INDIA RUBBER SPRINGS.**

The Commissioner of Patents has dissolved the interference which had been declared against this Patent. The Patentee is ready to supply the springs upon the shortest notice, in any quantity, and at a moderate cost. They have now been in use for nearly 4 years, with complete success. They are made of the best materials, are economical, both as to cost and wear; are light and very easy in their motion.

The patent was granted to W. C. Fuller, in October 1845. G. M. KNEVITT, Agent.

Office, 78 Broad street New York, and at Messrs. James Lee & Co., 18 India Wharf, Boston.  
Jan. 13, 1849.

**NICOLL'S PATENT SAFETY SWITCH**

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

G. A. NICOLLS,  
Reading, Pa.

**IRON BRIDGES, BRIDGE & ROOF BOLTS,**

etc.—STARKS & PRUYN, of Albany, N. York, having at great expense established a Manufactory with every facility of Machinery, for manufacturing Iron Bridges, Bridge and Roof Bolts, together with all kinds of the larger sizes of Screw Bolts, Iron Railings, Steam Boilers, and every description of wrought iron work, are prepared to furnish to order, on the shortest notice, any of the above branches, of the very best of American Refined Iron, and at the lowest rates.

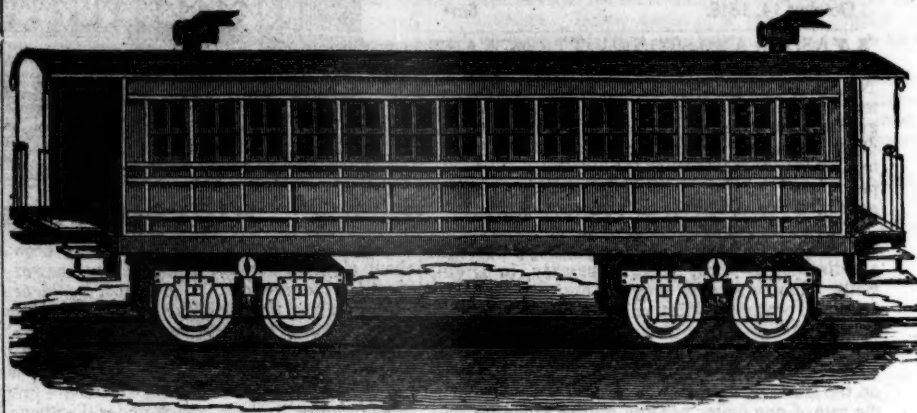
During the past year S. & P. have furnished several Iron Bridges for the Erie Canal, Albany Basin, etc., and a large amount of Railroad Bridge Bolts, all of which have given the most perfect satisfaction.

They are permitted to refer to the following gentlemen:

Charles Cook,	} Canal Commissioners of the State of New York.
Nelson J. Beach,	
Jacob Hinds,	
Willard Smith Esq.,	} Engineer of the Bridges for the Albany Basin.
Messrs. Stone & Harris	
Mr. Wm. Howe,	} Railroad Bridge Builders, Springfield, Mass.
Mr. S. Whipple,	
	} Engineer & Bridge Builder, Utica, N. Y.

January 1, 1849.

1y\*

**DAVENPORT & BRIDGES'**  
**CAR WORKS, CAMBRIDGEPORT, MASS.**

Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes. 10tf

**THE SUBSCRIBERS ARE PREPARED TO**  
execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK & CO.,  
Philadelphia.

ROBERT NICHOLS, Agent,  
No. 79 Water St., New York.

26tf

**RAILROAD IRON, PIG IRON, ETC.**

600 Tons of T Rail 60 lbs. per yard.

25 Tons of 2½ by 4 Flat Bars.

25 Tons of 2½ by 9-16 Flat Bars.

100 Tons No. 1 Gartsbrorie.

100 Tons Welsh Forge Pigs.

For Sale by A. & G. RALSTON & CO.  
No. 4 So. Front St., Philadelphia

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

**TO THOSE INTERESTED IN**  
Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark-Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city, will be promptly executed.

—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

The letters in the figures refer to the article given in the Journal of June, 1844.

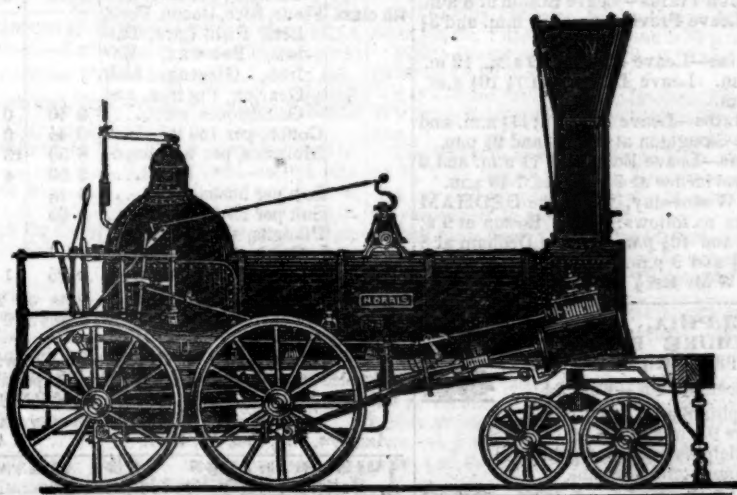
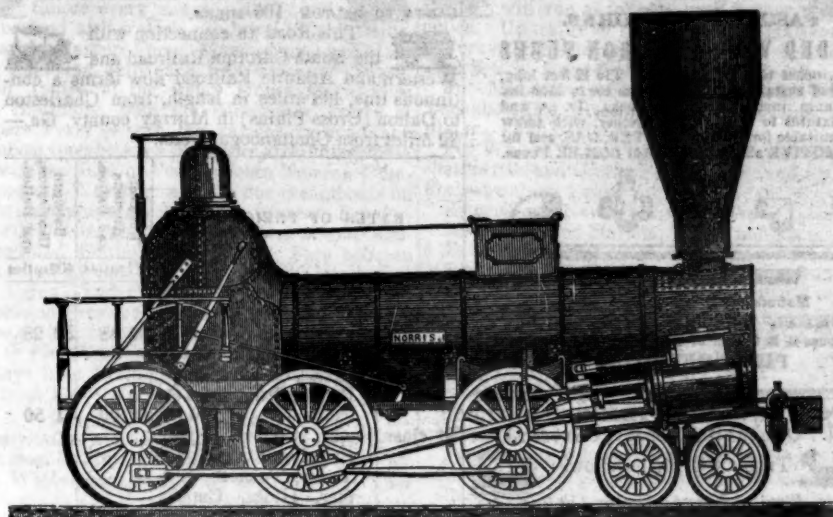
ja45





# NORRIS' LOCOMOTIVE WORKS.

BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,



**THE UNDERSIGNED** Manufacture to order Locomotive Steam Engines of any plan or size. Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS' BROTHERS.

**MACHINE WORKS OF ROGERS,** Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

## Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J., or 60 Wall street, N. York.

**T. & C. WASON,** Manufacturers of every style of Freight and Baggage Cars.—Forty rods east of the depot, Springfield, Mass.

Running parts in sets complete. Wheels, Axles, or any part of cars furnished and fitted up at short notice and in the best manner.

N.B. Particular attention paid to the manufacture of the most improved Freight Cars. We refer to the New Haven, Hartford and Springfield; Connecticut River; Harlem; Housatonic, and Western, Mass., Railroads, where our cars are now in constant use.

Dec. 25, 1847.—1y.

## RAILROAD IRON.

**3000 TONS, ABOUT 60 LBS. PR** lineal yard—deliverable early in the Spring, and of undoubted quality, can be contracted for at a low rate. For sale by

DAVIS, BROOKS & CO.,

68 Broad street.

New York, Sept. 16, 1848,

Also on hand—1000 Tons best quality Rails.

**CHILLED RAILROAD WHEELS.**—THE undersigned are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of Spokes or Disks, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

A. WHITNEY & SON,

Willow St. below 13th,

Nov. 10, 1847. [tf.] Philadelphia, Penna.

**PATENT RAILROAD, SHIP AND BOAT** Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent

Spikes are kept for sale, at Factory Prices, by & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 232 Water St., New York; A. M. Jones, Philadelphia; T. Jarviers, Baltimore; Degrand & Smith, Boston.

\* \* Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

**TO LOCOMOTIVE AND MARINE ENGINE** Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia.

1t

**TO RAILROAD COMPANIES AND MAN** ufacturers of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,

a45 N. E. cor. 12th and Market sts., Philad., Pa.

**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,

142 Front street, New York.

Orders for the above will be received and promptly attended to at this office.

391y







**BALTIMORE AND OHIO RAILROAD.**  
**MAIN STEM.** The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7 and 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburg and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1.60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13yl

**BALTIMORE AND SUSQUEHANNA**  
**Railroad.—Reduction of Fare. Morning and**

**Afternoon Trains between Baltimore and York.—The Passenger**  
trains run daily, except Sunday, as follows:  
Leaves Baltimore at.....9 a.m. and 3 p.m.  
Arrives at.....9 a.m. and 6 p.m.  
Leaves York at.....5 a.m. and 3 p.m.  
Arrives at.....12 p.m. and 8 p.m.  
Leaves York for Columbia at...1 p.m. and 8 a.m.  
Leaves Columbia for York at...8 a.m. and 2 p.m.

**FARE.**

Fare to York.....\$1 50  
" Wrightsville.....2 00  
" Columbia.....2 12 1/2  
Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg.....\$9  
Or via Lancaster by railroad.....10  
Through tickets to Harrisburg or Gettysburg...3  
In connection with the afternoon train at 3 o'clock, a horse car is run to Green Spring and Owning's Mill, arriving at the Mills at.....5 1/2 p.m.  
Returning, leaves Owning's Mills at.....7 a.m.  
D. C. H. BORDLEY, Sup't.  
31 ly Ticket Office, 63 North st.

**PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1848.**

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92		\$3.50 and \$3.00	
" " Reading, 58		2.25 and 1.90	
" Pottsville " 34		1.40 and 1.20	

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 8yl

**JAMES HERRON, Civil Engineer,**  
OF THE UNITED STATES NAVY YARD,  
PENSACOLA, FLORIDA,  
PATENTEE OF THE**HERRON RAILWAY TRACK.**

MODELS of this Track, on the most improved plans, may be seen at the Engineer's Office of the New York and Erie Railroad.

**NEW YORK & HARLEM RAILROAD**  
**CO.—Summer Arrangement.—On and after**

Tuesday, June 1st, 1847, the cars

will run as follows, until further notice. Up trains will leave the City Hall for—  
Yorkville, Harlem and Morrisana at 6, 8 and 11 a.m., 2, 2 30, 5 and 7 p.m.

For Morrisana, Fordham, Williams' Bridge, Tuckahoe, Hart's Corner and White Plains, 7 and 10 a.m., 4 and 5 30 p.m.

For White Plains, Pleasantville, Newcastle, Mechanicsville and Croton Falls, 7 a.m. and 4 p.m.

Freight train at 1 p.m.

Returning to New York, will leave—  
Morrisana and Harlem, 7, 8 20 and 9 a.m., 1, 3, 4 30, 6, 6 28 and 8 p.m.

Fordham, 8 08 and 9 15 a.m., 1 20 and 6 15 p.m.

Williams Bridge, 8 and 9 08 a.m., 1 10, 6 08 p.m.

Tuckahoe, 7 38 and 8 25 a.m., 12 55 and 5 52 p.m.

White Plains, 7 10 and 8 35 a.m., 12 50, 5 35 p.m.

Pleasantville, 8 15 a.m. and 5 15 p.m.

Newcastle, 8 a.m. and 5 p.m.

Mechanicsville, 7 48 a.m. and 4 48 p.m.

Croton Falls, 7 30 a.m. and 4 30 p.m. Freight train at 10 a.m.

Freight train will leave 32d street for Croton Falls and intermediate places, 4 a.m. and City Hall 1 p.m.

Returning, leave Croton Falls 10 a.m. and 9 1/2 p.m.

ON SUNDAYS, the trains will run as follows:  
Leave City Hall for Croton Falls, 7 a.m., 4 p.m.

Croton Falls for City Hall, 7 30 a.m., 4 30 p.m.

Leave City Hall for White Plains and intermediate places, 7 and 10 a.m., 4 and 5 30 p.m.

White Plains for City Hall, 7 10 and 8 35 a.m., 12 30 and 5 35 p.m.

Extra trains will be run to Harlem, Fordham and Williams Bridge on Sunday, when the weather is fine.

The trains to and from Croton Falls will not stop on N. York island, except at Broome st. and 32d st.

A car will precede each train 10 minutes to take up passengers in the city.

Fare from New York to Croton Falls and Somers \$1, to Mechanicsville 87c., to Newcastle 75c., to Pleasantville 62c. to White Plains 50c. 25tf

**NORWICH AND WORCESTER RAILROAD.**  
**Winter Arrangement.—1848.**

Accommodation Trains daily, (Sundays excepted.)

Leave Norwich, at 6 a.m., 12 m. and 2 1/2 p.m.

Leave Worcester, at 6 1/2 and 10 a.m., and 4 1/2 p.m.

connecting with the trains of the Boston and Worcester and Providence and Worcester railroads.

New York & Boston Line. Railroad & Steamers.

Leave New York and Boston, daily, Sundays excepted, at 5 p.m.—At New York from pier No. 1 N. River.—At Boston from corner Lincoln and Beach streets, opposite United States Hotel. The steamboat train stops only at Framingham, Worcester, Danielsonville and Norwich.

Freight Trains leave Norwich and Worcester daily, Sundays excepted.—From Worcester at 6 1/2 a.m., from Norwich at 7 a.m.

Fares are Less when paid for Tickets than when paid in the Cars. 32 ly

S. H. P. LEE, Jr., Sup't.

**BOSTON AND MAINE RAILROAD.**

Winter Arrangement. Commencing Nov. 13, 1848.

Trains leave Boston as follows, viz: For Portland at 7 A.M. and 2 1/2 P.M.

Great Falls at 7 a.m., 2 1/2 and 3 1/2 p.m.

Haverhill at 7 and 11 1/2 a.m., 2 1/2, 3 1/2 and 5 p.m.

Lawrence, at 7, 9, 11 1/2 a.m., 2 1/2, 3 1/2, 5, 6 p.m.

Reading, 7, 9 & 11 1/2 a.m., 2 1/2, 3 1/2, 5, 6 1/2 & 10 p.m.

Trains leave for Boston as follows, viz: From Portland at 7 1/2 a.m., and 3 p.m.

Great Falls at 6 1/2 and 9 1/2 a.m., and 4 1/2 p.m.

Haverhill at 7, 8 1/2 and 11 a.m., 3 and 6 1/2 p.m.

Lawrence at 6 1/2, 7 1/2, 8 1/2, 11 a.m., 12 1/2, 3 1/2, 6 1/2 p.m.

Reading at 6 1/2, 7 1/2, 9 1/2, 11 1/2 a.m., 1 1/2, 3 1/2, 7 1/2, 9 p.m.

MEDFORD BRANCH TRAINS.  
From Medford at 6 1/2, 8, 10 1/2 a.m., 2, 4, 6, 9 p.m.

From Boston at 7 1/2 a.m., 12 1/2, 2 1/2, 5 1/2, 6 1/2, 10 p.m.

The Depot in Boston is on Haymarket Square.

CHAS. MINOT, Super't.  
Boston, Nov. 7, 1848.

**NEW YORK ANDERIE RAILROAD LINE.**  
**SUMMER ARRANGEMENT.** For passengers, twice each way daily, (except Sunday,) leave New

York from the foot of Duane St. at 7 o'clock, A. M. and at 4 o'clock, P. M. by steamboat, for Piermont, thence by cars to Ramapo, Monroe, Chester, Goshen, Middletown, Otisville, and the intermediate stations.

The return trains for New York will leave Otisville at 6 30, A. M. and 4 15, P. M.; Middletown at 7 A. M. and 4 40, P. M.; Goshen at 7 22, A. M. and 5 3, P. M.; Chester at 7 35, A. M. and 5 18, P. M.

Fare between New York and Otisville, \$1 50; way-fare in proportion.

For Milk—Leave Otisville at 5 1/2 o'clock, morning and evening.

For Freight—The barges "Samuel Marsh and Henry Suydam, Jr." will leave New York (from the foot of Duane St.) at 5 o'clock, P. M. daily (except Sundays.)

No freight will be received in New York after 5 o'clock, P. M.

Freight for New York will be taken by the trains leaving Otisville at 10 1/2 o'clock, A. M.; Middletown at 11 1/2, A. M.; Goshen at 12 1/2, P. M.; Chester at 1 o'clock, P. M., etc., etc.

For farther particulars, apply to J. F. CLARKSON, Agent, corner of Duane and West Sts., New York, or to S. S. POST, Superintendent Transportation, Piermont.

24tf H. C. SEYMOUR, Sup't.

**LITTLE MIAMI RAILROAD COMPANY**  
**Fall and Winter Arrangement, 1847. On and**

after Monday, September 20th,

until further notice, a Passenger train will run as follows:

Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Yellow Springs, and Springfield. Returning, will leave Springfield at 4 1/2 a.m. Upward train arrives at Cincinnati at 2 1/2 p.m. Downward train arrives at Cincinnati at 10 1/2 a.m.

Freight trains will run each way daily.

Messrs. Neil, Moore & Co. are running the following stage lines in connection with the road:

A daily line from Xenia to Columbus and Wheeling, carrying the great Eastern mail.

Daily lines from Springfield to Columbus, Zanesville and Wheeling. Also to Urbana and Bellefontaine.

A line of Hacks runs daily in connection with the train between Deerfield and Lebanon.

Passengers leaving for New York and Boston, arrive at Sandusky city via Urbana, Bellefontaine & the Mad River and Lake Erie railroad, in 27 hours, including several hours' sleep at Bellefontaine. To the same point via Columbus, Delaware, Mansfield and the Mansfield and Sandusky city railroad, is 32 hours. Distance from Cincinnati to Springfield by railroad.....84 miles.

From Springfield to Bellefontaine by stage, over a good Summer road.....32 "

From Bellefontaine to Sandusky city by railroad.....102 "

FARE—From Cincinnati to Lebanon.....\$1 00

" " " Xenia.....1 50

" " " Springfield...2 00

" " " Columbus...4 00

" " " Sandusky city 7 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

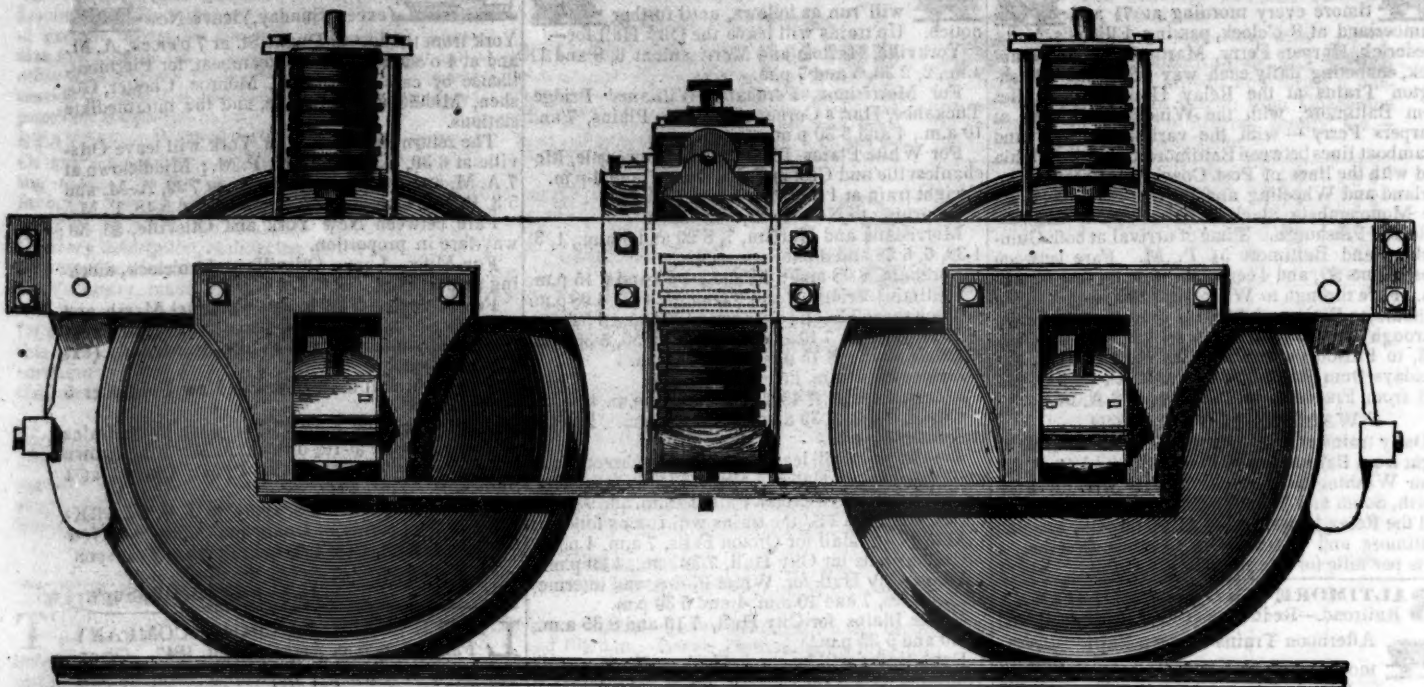
The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

47tf W. H. CLEMENT, Sup't.



FOWLER M. RAY'S

## METALLIC INDIA RUBBER CAR SPRINGS.



THE NEW ENGLAND CAR COMPANY have introduced these Springs, and they are now in operation on every Railroad terminating in Boston, and several others in New England and the Middle States. Their qualities are well understood, or may be readily ascertained by every person interested to know them. They require no recommendation from the Company. The only known compound of India Rubber good for anything for this purpose, is the Vulcanized India Rubber, invented by Charles Goodyear, of New Haven, and the application of it, and the form in which it is used, were invented by F. M. Ray, of New York. The right to manufacture and sell the substance itself for the purpose of Railroad Carriage Springs, as well as the form and application of it, are held exclusively by the New England Car Company. No other company, or individual, has any right to sell or use it for such purpose, or has attempted so to use it in this country.

The New England Car Company guarantee the right to use the article they sell for Railroad Carriage Springs only against all adverse rights, whether under patents or otherwise; and all persons and corporations are cautioned against a similar use of the article, when purchased of any other parties.

The Springs they sell are all manufactured in a uniform manner, and under the immediate inspection of their own Agent, and have been proved and known to answer the purpose. None have been manufactured in this country, or imported from abroad, beside their own, which would at all answer the purpose; and if any such should be produced, it cannot be used for Car Springs, while Goodyear's patents, and the rights of the New England Car Company under them, remain in force.

The New England Car Company are now prepared to answer orders for all that may be called for, on reasonable notice, and uniform and equitable terms. They invite the most careful examination, and the severest scrutiny, into the merits of their Springs, wherever they have applied them. And if after such examination, your Company should judge it for their interest to adopt them, the N. E. Car Company would respectfully invite the patronage which they think they deserve, and are confident of receiving at your hands.

EDWARD CRANE, Agent,  
Office 99 State street,

Orders may also be left with WM. RIDER & BROTHERS, No. 59 Liberty street, New York, or with F. M. RAY, Agent,  
100 Broadway, N. Y.

The following article, from the pen of Mr. HALE, the president of the Boston and Worcester Railroad, expresses his opinion of this important improvement, as published in the Boston Daily Advertiser of June 7, 1848. He says:

"Of the numerous uses to which the wonderful elasticity and durability of India Rubber renders this material

applicable, we are hardly aware of one in which it has been more successful than in forming springs for railroad cars. We have had occasion to observe, for some months past, its application to this use, on one of the passenger cars on the Newton special train of the Boston and Worcester railroad. It is there used, not only for the springs on which the car rests, but for the springs attached to the draw bar at each end of the car, to prevent any jar on the sudden advancement or interruption of the motion of the car. For both these purposes it appears to be admirably adapted, and we do not learn, that during the period in which it has been used, any defect in it has been discovered. It renders the movements of the car extremely easy, and protects it more effectually, we think, than any other spring which we have ever seen in use, from every harsh or unpleasant motion, either vertical or horizontal. It is simple in its form and application, extremely light, and little liable to get out of repair. During the period of some months, in which we have seen the springs in operation, there is no apparent wear or diminution of their efficacy."

The above statement of Mr. Hale agrees with my own observation in all particulars.

WM. PARKER, Supt. B. & W. R. R.  
June 8, 1848.

I fully concur in the foregoing statement, from practical observation of its use for the last 5 months, on the Boston and Worcester railroad corporation cars.

D. N. PICKERING, Jr.,  
Supt. Car Building, B. & W. R. R.  
Boston, June 10, 1848.

The New England Car Company have introduced their Vulcanized India Rubber Car Springs on the roads with which we are respectively connected, and we fully concur with Mr. Hale in the above opinion of their character and properties.

DAVENPORT & BRIDGES, Car Builders.  
BRADLEY & RICE, Car Builders.  
Boston, June, 1848.

**PIG AND BLOOM IRON.—THE SUBSCRIBERS** are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,  
Vine St. Wharf, Philadelphia.

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office No. 98 Nassau street.

**LAP-WELDED WROUGHT IRON TUBES** for Tubular Boilers, from 14 to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,  
12 Platt street, New York.  
JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom.

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## AMERICAN RAILROAD JOURNAL.

OFFICE AT NO. 98 NASSAU STREET,  
(Opposite the Herald Buildings.)

## NEW YORK.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

## RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5

LETTERS and COMMUNICATIONS for this Journal may be directed to the Editor,

D. K. MINOR,